

REMARKS

This reply encompasses a bona fide attempt to address the rejections raised by the Examiner and presents amendments as well as reasons why the applicants believe that the claimed invention is novel and unobvious over the closest prior art of record, thereby placing the present application in a condition for allowance.

Regarding Claim Status

Claims 1-13 were examined. Claims 1-13 were rejected. Claim 1 is amended herein. Support for this amendment can be found in the application as filed. No new matter is added by this amendment. Claims 6 and 14-31 are cancelled herein. By this Amendment, claims 1-5 and 7-13 are pending.

Regarding 35 U.S.C. § 102 Rejections

Claims 1-5, 7-9 and 13 were rejected under 35 U.S.C. § 102(b) as being anticipated by Konrad (US 5,789,167). Claim 1 has been amended herein to include the limitation of claim 6, thereby rendering the rejection of claim 1 moot. As claims 2-5, 7-9 and 13 are dependent on amended independent claim 1, Applicants submit that the rejection of these claims is also moot.

Regarding 35 U.S.C. § 103 Rejections

Claims 10-12 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Konrad. With respect to claim 10, the Examiner states that while Konrad is silent as to the specific frequency of voltage employed by the apparatus, it would have been within the purview of one having ordinary skill in the art to determine the optimum frequency to cycle the electric

field. Applicants respectfully submit that this is not the case. Konrad teaches the use of an alternating electric field for the purposes of extending DNA. In contrast, Applicants use a cyclical electrical field to move molecules in a cyclical pattern in order to promote rapid hybridization. Claim 1 has been amended to more particularly point out that the apparatus is a “rapid hybridization apparatus”. Prior to the invention by Applicants, it was not known that electrically inducing molecules to move in a cyclical pattern could radically increase the rate of hybridization. Thus, the range of cyclical frequencies suitable for increasing the rate of hybridization could not have been predicted by a person of average skill in the art at the time the invention was made. Thus applicants respectfully submit that claim 10 is not obvious over Konrad and should be allowed.

Claim 6 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Konrad in view of Northrup (US 6,979,424). Applicants have incorporated the limitations of claim 6 into independent claim 1. The Examiner contends it would have been obvious to provide gas vents in the apparatus of Konrad as taught by Northrup. Applicants respectfully submit that this is not the case. Konrad uses an alternating electric field for the purpose of extending DNA without the evolution of gas at the electrode surface (column 7, line 65 to column 8, line 3. In other words, Konrad’s purpose for using a cyclic electric field is to eliminate the evolution of gas, “since no gas is evolved when there is no net current”. Applicants respectfully submit that as no gas would be expected to evolve using the cyclic electric field according to Konrad, there would have been no motivation to use gas vents in the apparatus of Konrad. Therefore, Applicants respectfully submit that amended claim 1 is not obvious from the combination of Konrad and Northrup and should be allowed. As claims 10-12 are

dependent on amended independent claim 1, it is respectfully submitted that claims 10-12 should also be allowed.

Conclusion

For the foregoing reasons, it is respectfully submitted that the invention as set forth in amended independent claim 1 recites subject matter that is novel, under 35 U.S.C. § 102(b), from Konrad, and patentably distinct, under 35 U.S.C. § 103(a), from Konrad and the combination of Konrad and Northrup. Accordingly, amended independent claim 1 is submitted to be patentable and therefore should be allowed. Claims 2-5 and 7-13 are submitted to be patentable as they are dependent on amended independent claim 1.

This Reply is submitted to be complete and proper in that it places the present application in a condition for allowance without adding new matter. Favorable consideration and a Notice of Allowance of all pending claims 1-5 and 7-13 are therefore respectfully solicited.

Respectfully submitted,



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